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(ADVISORY COMMITTEE ON RECONSTRUCTION)

THE REHABILITATION OF THE
ST. LAWRENCE COMMUNITIES

A Report on the Factors in the Rehabilitation
of the St. Lawrence Communities Partly or Wholly
Inundated in the Development for Power and
Navigation of the International Rapids Section
of the St. Lawrence River.

by

Norman D. Wilson



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April, 1943.

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- D. Preliminary Study for the Rehabilitation of Morrisburg.

This study was prepared for the use of the Subcommittee on Publicly-Financed Construction Projects. The views expressed are those of the author and do not necessarily carry the approval of the Advisory Committee on Reconstruction or its Subcommittee. A set of four maps have been drawn up, the originals of which are with the Directorate of Economic Research, Department of Reconstruction. The maps are not included in this mimeographed report.

PREFACE

The report on the Rehabilitation of the St. Lawrence Communities is one of a series prepared at the request of the Advisory Committee on Reconstruction for the purpose of providing factual information on particular aspects of postwar policy. This study was made at the instance of the Subcommittee of Publicly-Financed Construction Projects which had been set up by the Advisory Committee on Reconstruction for the purpose of evaluating the importance of public investment, preparing recommendations on the set-up of specific machinery to assure smooth operation of the postwar investment program and outlining methods of financing and assessing desirable works projects.

In considering the future role of public investment in Canada, the Subcommittee indicated the necessity for a new approach aiming at the full utilization of the human and natural resources of the country. A program of publicly financed employment measures "must be a bold, enterprising even enthusiastic program unhampered by the formulae of previous ventures which are not appropriate".

Mr. Wilson's report reviews the present economic and physical conditions of certain areas along the International Section of the St. Lawrence waterway and submits recommendations for a Dominion-Provincial commission to supervise the rehabilitation of these areas. A number of maps are added demonstrating graphically the present situation and possible improvements.

The views expressed in this report and the recommendations made are those of the author and are not to be interpreted as necessarily carrying the endorsement of the Advisory Committee on Reconstruction or its Subcommittees.

L. C. Marsh,

Research Adviser.

INTRODUCTION

On the recommendation of the Panel, the Sub-Committee on Publicly Financed Construction Projects on September 16th last gave approval to obtaining a preliminary report relative to the urban and rural planning made necessary and desirable by the prospective flooding of certain areas along the International Section of the St. Lawrence Waterway, and authorized my being commissioned for that purpose. On October 30th, Mr. J. E. MacKay, Secretary of the Committee on Reconstruction, officially notified me to that effect.

Essentially the task assigned to me was to present a sketch plan for the district as a whole, indicating its probable development in terms of industry, transport, amenities, financing and other features listed in the report of the Panel.

My report is submitted herewith. The plans attached, setting out in graphic form certain of my suggestions and recommendations, are of quite a preliminary nature, intended to indicate the scope of the problems and the direction of its solution, rather than any final answer. A final solution can only be brought about when final decisions have been made by the various bodies, public and private, corporate and individual, whose properties will be affected by the carrying out of the St. Lawrence Development, as to what they are prepared to do in the circumstances. It can only be brought about by a public body empowered to demand such decisions, and to modify them in the co-ordinated interest of all. One of the purposes of the plans submitted herewith, is to influence such decisions, that they will the sooner be brought into harmony with one another. My chief recommendations are with respect to the establishment and organization of an authoritative planning body.

This report has been governed by the fact that it is primarily occasioned by the necessity for the rehabilitation of the St. Lawrence communities whose sites are flooded, and whose existence is jeopardized by the International Rapids Development proposals. The possibilities of a more extended economic life for this area than has lately been enjoyed has not been forgotten, but the proposals suggested herein are in no way dependent on an altered economic life. The proposals made seek to rehabilitate the communities in such a way, that, as far as may be possible under very altered circumstances, the economic life of these communities will continue as before. But always opportunity is left, and provision is made, that if improved economic life results, the communities can expand to meet it, without loss of amenities.

On the other hand, I do not allow that rehabilitation is patching. Structures that must be replaced, are to be replaced with modern type structures as adequate and proper in accordance with present day standards for the purpose for which they are intended as were the structures they replace adequate and proper at the date when they were built. This applies also with regard to non structural amenities.

No estimates of cost have been made. At the same time cost has never been forgotten. The general proposals for rehabilitation envisaged in the estimates of the Temporary Great Lakes-St. Lawrence Basin Committee have been kept in mind. It is believed that the proposals herein made are in keeping with those general proposals and estimates.

But beyond every other consideration in matters such as this where community life and social ties are disrupted, is the fact that we are dealing with human beings of free will. There is no control as to where people will locate, if their present home is taken

from them. Houses to move into must be available before any householder can be disturbed. The individual's personal views must be considered. Any planning organization established must interest itself in the solution of the many human problems that will arise, whether individual, social or municipal. Any planning body set up must draw its powers from two jurisdictions.

The essential factor in the rehabilitation program along the St. Lawrence, is the co-operation of the Ontario and Dominion Authorities. A method for making effective the willingness of both authorities to co-operate is proposed in Section VI of the report, and is the key recommendation.

I desire to express my appreciation to the Department of Transport, and to the Ontario Department of Highways for certain maps of the St. Lawrence area, and to the former for the essential information required relative to water levels at various points, and times, and as to the anticipated sequence of the construction program.

April 10, 1943

Norman D. Wilson

SECTION I

ST. LAWRENCE DEVELOPMENT PROPOSALS

Agreements Providing for the Work

On March 19, 1941 an agreement was signed between the Governments of Canada and the United States providing for the Development of Navigation and Power in the Great Lakes St. Lawrence Basin. This agreement is subject to ratification by the Parliament of Canada, and the Congress of the United States. The matter has not yet been brought before either body.

As of the same date, an agreement was signed between the governments of Canada and Ontario, setting out their respective rights and responsibilities in connection with the St. Lawrence development. This agreement is also subject to the approval of the Parliament of Canada and the Legislature of Ontario, and awaits the ratification of the Canada-United States agreement. This Canada-Ontario agreement is subject to cancellation if the Canada-United States agreement has not come into force by March 19, 1944.

The physical plan of development adopted as the basis for the agreement is described as "works in the International Rapids Section in accordance with and containing the features described in the Annex attached to and made part of this agreement, with such modifications as may be agreed upon by the Governments." (Canada - United States Agreement, Article I. 1 (a)).

This Annex which is also included in the schedule attached to the Canada-Ontario Agreement reads as follows:-

ANNEX

CONTROLLED SINGLE STAGE PROJECT (238-242)

FOR WORKS IN THE INTERNATIONAL RAPIDS SECTION

(See Article I, Paragraph 1 (a))

The main features of the Controlled Single Stage Project (238-242), described in detail with cost estimates in the report of the Temporary Great Lakes-St. Lawrence Basin Committees dated January 3, 1941, are as follows:

- (1) A control dam in the vicinity of Iroquois Point.
- (2) A dam in the Long Sault Rapids at the head of Barnhart Island and two power houses, one on either side of the International boundary, at the foot of Barnhart Island.
- (3) A side canal, with one lock on the United States Mainland to carry navigation around the control dam and a side canal, with one guard gate and two locks, on the United States mainland south of Barnhart Island to carry navigation from above the main Long Sault Dam to the river south of Cornwall Island. All locks to provide 30 ft. depth of water on the mitre sills and to be of the general dimensions of those of the Welland Ship Canal. All navigation channels to be excavated to 27 ft. depth.
- (4) Dykes, where necessary, on the United States and Canadian sides of the international boundary, to retain the pool level above the Long Sault Dam.

- (5) Channel enlargement from the head of Galop Island to below Lotus Island designed to give a maximum velocity in the navigation channel south of Galop Island not exceeding four feet per second at any time.
- (6) Channel enlargement between Lotus Island and the control dam and from above Point Three Points to below Ogden Island designed to give a maximum mean velocity in any cross-section not exceeding two and one-quarter feet per second with the flow and at the stage to be permitted on the 1st of January of any year, under regulation of outflow and levels of Lake Ontario.
- (7) The necessary railroad and highway modifications on either side of the International Boundary.
- (8) The necessary works to permit the continuance of 14 ft. navigation on the Canadian side around the control dam and from the pool above the Long Sault Dam to connect with the existing Cornwall Canal.
- (9) The rehabilitation of the towns of Iroquois and Morrisburg, Ontario.

All the works in the pool below the control dam shall be designed to provide for full Lake Ontario level but initially the pool shall be operated at maximum elevation 238.0.

The points in the Canada-United States Agreement relevant to the present discussion are as follows:-

(1) An International Commission of not more than ten members of whom an equal number shall be appointed by each Government is to be established. This Commission is empowered to prepare and recommend plans, approve contracts, supervise construction, etc. The governments may, by interchange of notes, increase or diminish the powers of the Commission.

One important duty of the Commission is to allocate construction work so that the nationals of each government construct the works within their respective territories, or where such is not practical, an equivalent amount of work in the others territory. Boundary restrictions are to be waived to permit the effective and economical prosecution of such works on foreign soil.

(2) All funds for the construction of all works in the International Rapids Section with certain specific exceptions, are to be provided by the Government of the United States. The exceptions are set out in Article III (b) and in Article X and are as follows:-

- (1) Machinery and Equipment for the development of power.
- (2) Works required for rehabilitation on the Canadian side of the International Boundary.
- (3) Lands and Interests in lands in Canada necessary to give effect to the agreement.
- (4) Consequential damages of any sort on the Canadian side, except with respect to damage to persons or property occurring in the course of works being done by a U.S. National on the Canadian side of the border.

Article X of the agreement reads in full as follows:-

ARTICLE X

The Governments agree that:

- (a) each Government undertakes to make provision for the disposition of claims and for the satisfaction of any valid claims arising out of damage or injury to persons or property occurring in the territory of the other in the course of and in connection with construction by such Government of any of the works authorized or provided for by this Agreement;
- (b) each Government is hereby released from responsibility for any damage or injury to persons or property in the territory of the other which may be caused by any action authorized or provided for by this Agreement, other than damage or injury covered by the provisions of paragraph (a) of this Article;
- (c) each Government will assume the responsibility for and the expense involved in the acquisition of any lands or interests in land in its own territory which may be necessary to give effect to the provisions of this Agreement.

The maintenance of 14 foot navigation through the International Rapids Section during the construction period is to be maintained, (Article IV (g)) without the exact route or method being specified. Either government may proceed at any time to provide alternative canal and channel facilities within its own borders, (Article VI).

One of the matters stipulated in the Canada - United States Agreement which is vital to this discussion is that with respect to the levels at which the water will be held for successive periods. The hydraulic project provided for is that referred to as the Controlled Single Stage Project (238-242).

For a test period of (probably) ten years after the completion of the work the water will be held at the main dam just west of Cornwall, at elevation not in excess of 238 above sea level (Article IV (e)), though the works are to be designed to provide for full Lake Ontario level (Annex to Agreement). (Such full Lake Ontario level could only occur under the wholly improbable conditions of a complete shut down of all power development and all gates kept closed). The water will stand at Elevation 238 for seventy-five per cent of the time, but may fall as low as 235 during brief periods of low water.

At the end of ten years or sooner if the authority set up to deal with the river flow so recommends, the governments by exchange of notes, may authorize operation at a maximum elevation exceeding 238 (Article IV (e)). In this second stage under normal circumstances of operation and gate control the water level at the main dam will at no time exceed elevation 242.5. Low water levels will remain as before.

The provisions of the Canada-Ontario Agreement pertinent to this discussion, are all contained in Article IV of that agreement which is as follows:

ARTICLE IV

- (a) Canada assumes responsibility for the provision of all lands required for the purposes of this Agreement and agrees to save Ontario harmless from any claims which may arise therefrom or in consequence of Canada's failure to provide sufficient lands for such purposes.

(b) Canada agrees that, in all cases in which a municipal body has suffered serious loss in tax revenue or has suffered serious impairment of security for debentures issued, by reason of the taking of a substantial proportion of its taxable property, equitable claims by such municipal bodies may be submitted for settlement by an arbitral tribunal established under the provisions of Article XIV. Such tribunal will have jurisdiction to entertain and determine such claims and Canada undertakes to pay any awards made by the tribunal thereunder. Such awards shall be paid to such persons or corporations in such manner and proportions as the Ontario Municipal Board may direct.

(c) Canada will assure to Ontario such lands as are required for power works, including lands required for electric switching structures, and such other lands as may be reasonably necessary for the proper operation and maintenance of the power development. Such lands will become the property of Ontario at the time provided in, and subject to the provisions of Article III.

(d) In addition, and in the event that any lands useful for transmission lines have been acquired by Canada in consequence of transactions connected with works under this Agreement, Canada will make such of these lands as are required available without cost to Ontario by transmission purposes, provided that such use of the lands for Ontario does not interfere with their reasonable and early use by Canada for a specific purpose.

Article XIV provides for arbitration by a tribunal of three arbitrators. Article III refers to the payment by Ontario to Canada of the payment of the initial instalment of the sum agreed upon as due to Canada for Ontario's share of the commonworks and the power works imbedded in the common works.

Article IV (b) of the Canada-Ontario agreement is far reaching in its scope. Equitable claims presumably would be limited to those where the tax revenues accruing to the municipality under the new conditions were left substantially out of line with its new municipal obligations. It is impossible to say whether this will ever be the case with any municipality.

Engineering Conditions

The development of the St. Lawrence for power and navigation, is essentially a hydraulic problem, including in the hydraulic problem, that of ice. The construction problem, while of substantial size, presents no outstandingly difficult features. The ancillary problems arising from the wiping out in whole or part of long established communities, the complete re-arrangement of railway and highway facilities, and a complete change in economic environment of the communities remaining, cannot be solved with equal certainty, as they involve human problems.

There is one feature of the construction program which is basic to this discussion, viz., the time that will elapse from the beginning of construction to the date when the water will first begin to rise, and the speed at which it will rise.

As the water must be raised at a time when there is no likelihood of ice forming; as it will require about ten days for the pool to fill, without disturbing down river power developments, or Montreal Harbour levels; as navigation in the International Section must be considered; and in turn as some months time will be required to test out the turbines and generators, and get the power plant in running order, to be in readiness for a (presumable) peak requirement for electrical power during the winter months, it is anticipated that the raising of the water will be scheduled for spring, after the ice is gone, and when the opening of navigation could be delayed for a week or so, without adverse effect.

From the point of view of shore interests, spring would seem about as advantageous a season as any for a mass migration.

It is possible to raise the water in two stages. The first stage would be to raise it to elevation 222, when 14 feet of water would be available in the new locks. The second stage would raise it the additional 16 feet. There seems little advantage to any interest in this alternative.

It is estimated that construction can be carried out in four years, or even less if the necessity was urgent. It can be assumed that no flooding of the foreshore will occur until the spring comes around three years from the time of beginning construction. At that date flooding will be to all intents instantaneous.

It is definitely proposed as part of the work to acquire all lands below elevation 248. This is 3-1/2 feet higher than ultimate high water immediately below the control dam, and 5-1/2 feet higher than high water at the main dam. For some period of time, the water will not be raised above elevation 238. The intervening area to contour 248 is very largely agricultural land, and can be continued in use for that purpose. For a very considerable time, if not permanently the general characteristic of the river banks will be a border of varying width of pasture land and hay fields very sparsely populated.

General Effect of the work on the Canadian Foreshore

The area appreciably affected by the work has a length of 32 miles, and is wholly included in the counties of Dundas and Stormont.

The main dam is located about three miles west of the west limit of Cornwall and will create a head of not quite 84 feet in the first instance with a later normal maximum of about 87 feet. The control dam is located at Iroquois Point, 28 miles west. This dam will raise the water about 11 feet above present levels of the river at this point. The head lost at this dam during the initial stage of operation will vary from 0.5 feet in winter to 3.5 feet in summer. The new level of the upper pool will not greatly differ from the water level of the present Galops Canal.

The west limit of the County of Dundas intersects the river about 3-1/2 miles west of the Control Dam, and about a mile east of the village of Cardinal in the County of Granville. While the canalization of the river extends and the water is backed up for five miles west of Cardinal, the banks of the river are high, flooding in the few cases where it will occur, will be purely local in extent and can be disregarded for the purpose of this memorandum.

The municipalities seriously affected by flooding, and for which a program of rehabilitation is necessary are six in number, as follows:

(a) In the County of Dundas:

1. The township of Matilda
2. The Village of Iroquois
3. The Township of Williamsburg
4. The Village of Morrisburg

(b) In the County of Stormont:

1. The Township of Osnabruck
2. The Township of Cornwall

SECTION II

CONSIDERATIONS BASIC TO THE PLANS PROPOSED

The scope of this discussion is to set out the problems which will be urgently in need of a solution immediately the Canada - U.S. agreement re the St. Lawrence is ratified. These problems have all a common denominator in that they all arise from the drowning of well settled and historic communities. Similarly the solution of these problems is the same, viz., regional planning.

While plans are attached which set out graphically certain preliminary conclusions as to the form a regional plan for the International Rapids zone should take, these are submitted to indicate more the scope of the problem and the direction of its solution than as final plans of development. For clarity, existing conditions are ignored, and the water areas shown are as they will be when the power and navigation development is completed. Their lack is that they fail to give any full appreciation of the disturbance to existing communities caused by the work.

I have not assumed any grandiose industrial or economic development in the area, as the basis of my general proposals. I interpret my assignment to indicate the extent of the municipal and social problems which are ancillary to the St. Lawrence Development Project as a post-war construction project. The estimates for that project submitted by the Temporary Great Lakes - St. Lawrence Basin Committee include amounts for property damages, and for re-habilitation to the villages disorganized by the works, as well as for the replacement of highways and railways. I have limited my own proposals to such a program of rehabilitation.

As a measure of what is involved, the estimates of the Temporary Great Lakes - St. Lawrence Committee for the above series of works totalled closely \$28,000,000, as follows:

Railway Relocation	-	3,437,500
Highway Relocation	-	2,125,000
Acquisition of Lands	-	14,011,000
Rehabilitation of Morrisburg	-	5,024,000
Rehabilitation of Iroquois	-	<u>3,379,000</u>
Total Ancillary Costs on Canadian Shore		- <u>\$27,976,500</u>

My main assumptions are that to the St. Lawrence Communities so severely affected, must be restored, to the extent possible, their present assets, which are, accessibility to the river, good highway facilities, and natural scenic attractiveness. These are what have made them pleasant places in which to live, both all year round and during the summer season. From the last they draw a considerable measure of prosperity.

The main business of the rural countryside, dairy products and cattle raising, will not be materially affected above the extent represented by drowned farms. It is assumed that to the extent the shore communities profit from this rural business, such can be retained to them.

It is to be hoped that the industrial concerns which are disturbed, can be relocated in the territory. Provision is made at Morrisburg and at Mille Roches, and to a lesser degree at Iroquois, for additional industrial development, but no proposals are predicated upon such being accomplished.

It is unlikely that with all the new war industrial plants available for peace time ventures, that any large industrial developments

can be counted on by the time this rehabilitation work is in progress - that is to say, concerns requiring large acreage, deep water frontage, and extensive railway siding accomodations. Such concerns choose their own sites and create their own towns. While sites suitable for such type of development can be found along the International Rapids section, they have not been indicated on the plans. The finding and locating within this zone of industries of such character is outside the scope of rehabilitation, but is not beyond the functions of the Commission recommended to be set up to handle rehabilitation.

Railway and Highway Location Surveys

Two basic assumptions have been made which to a considerable degree influence the details of the physical plan. These have to do with the tentative locations of the Canadian National Railway and the Ontario Department of Highways.

The double track main line of the Canadian National Railways is below elevation 248 from 2-1/2 miles east of Morrisburg station to four miles west of Cornwall station, a total distance of 24 miles. Sixty per cent of this distance will be submerged during the first stage of the development when the water is raised to Elevation 238. In addition to the above, another three miles of track at Iroquois is similarly affected.

While the project plan of the Temporary Great Lakes Basin Committee shows local diversions of the tracks around each of these sections, the Canadian National Railway have located an entirely new alignment from immediately east of Cardinal station to the diamond crossing with the Ottawa and New York Railway immediately west of Cornwall, a total distance of 35-1/2 miles. It is hardly open to doubt that if the Railway Company is of the opinion that the large diversion provides better operating conditions and economies, it will be constructed, irrespective of who pays the increased costs.

The railway right of way to be abandoned can very effectively be made use of for highway purposes. A continuous stretch of eight miles, six west of Morrisburg and two east, can be utilized as a permanent roadway. As much again in broken sections can be used as highway during the first stage of development to serve the farm lands bereft of other frontage.

King's Highway No. 2 follows the river bank. Except for two miles at the west end of Matilda Township, and a mile and a half at Morrisburg, the entire length of this highway fronting on the work is submerged, though sections in Matilda Township could be used until the water was raised above elevation 238.

It is an open secret that the Ontario Highways Department has in mind the ultimate construction of a new dual highway, extending the Queen Elizabeth way to the Quebec boundary. The construction of this highway is occasioned by the traffic needs, and would at most only be expedited a year or so if the present Highway No. 2 were to be inundated at an early date. This dual highway, when built, will certainly conform to a standard of construction not less than that of the Queen Elizabeth Way. It will be constructed on private right of way, by-pass all villages and towns, and access to and from towns en route will be by a restricted number of side roads, the more important with clover-leaf intersections. Various alternative alignments have been projected for this new highway, but no final determination has been made. I have adopted what to me appears the most desirable, but no recommendation or suggestion herein made is essentially modified, if any presently-in-mind alternative route for the highway is adopted.

This dual highway would be in no sense a service road. Only to a limited degree would it replace the existing and historic river road. A road of comparable standard to the existing highway must be constructed over almost the entire front affected by flooding, in replacement of it.

SECTION III

EFFECTS OF RAISING WATER LEVEL ON RURAL COMMUNITIES AND UNINCORPORATED VILLAGES. NEW SITES SUGGESTED

Extent of Flooding

Upwards of 14,500 acres of the Canadian mainland will be flooded or affected by the St. Lawrence project. Every present Canadian island between the two dam-sites will be drowned, except that two small islands will represent what remains of Sheek Island. A whole string of new islands will represent the high ground immediately north of the existing highway between Farrans Point and Moulinette.

Except right at Iroquois Village, the Township of Matilda is not extensively flooded, but sufficiently so to cover the highway, and flood out the majority of buildings fronting on it.

East of Morrisburg as far as Farrans Point the land is low lying and will be extensively flooded, the water in the final stage creeping back as much as a mile from the present shore line, at certain points. Variations in the level of the water will create pronounced differences in the position of the shore line. No permanent development along the shore appears practical during the ten year test period, and the best use of the lands below 248, would be as hay fields.

So many acres are so little below ultimate flood level that the possibility of poldering certain acreage blocks immediately intrudes itself. Any elaborate system of dykes is immediately ruled out by the cost entailed in constructing them, and by the cost of pumping the drainage. However, it is quite possible, if not probable, that substantial acreage will be enclosed by low earth dykes constructed, say, along the 240 or even 238 contour, which would preserve for agriculture the area enclosed against seasonal high water. If these polders were so arranged that the drainage to be taken care of was limited to seepage and precipitation on the enclosed area itself, it should not constitute a costly problem.

However, this matter is not pertinent in the first stage of development, or until the water is raised above elevation 238. As well, present values of land must increase materially to make poldering worth while, except in most exceptionally favourable local circumstances. *

The above observations particularly apply to the west three miles of Osnabruck Township (west of Farrans Point). Comparatively little farm land is flooded with the water at Elevation 238, yet with water at 242 (second stage level) large acreages are barely covered. Similar conditions exist in the upper drainage basin of Hoople Creek.

Eastward from Farrans Point entirely different conditions are created, and more particularly east of Dickinson Landing. The country is deeply inundated in the first stage, when the water is raised to elevation 238, and relatively little alteration occurs in the shore line when the water is further raised. Opposite Dickinson Landing, the flooding at elevation 238 extends 2-1/2 miles inland. At the boundary between Osnabruck and Cornwall Townships, the shore is retired over 1-1/2 miles. Opposite Moulinette, Sheek Island is almost wholly submerged, while on the mainland, the shore line of Bergen Lake is moved north nearly half a mile.

From Mille Roches for 2-1/2 miles to the power houses, the pool is contained by a high dyke, on the northerly side of which is located a new 14 foot navigation canal. This canal drops 50 feet and connects with the present Cornwall Canal in front of Cornwall City.

Farm and other Buildings along No. 2 Highway

Due to the fact that the work is to be accomplished in two stages, for a number of years substantial acreages can be farmed pending later flooding. However in relatively few instances will farm buildings continue to exist, as the great proportion of these are located close to the river road and are flooded out at the first raising of the water. Some of the farm buildings west of Aultsville may be allowed to continue for a period. West of Morrisburg nearly to Iroquois, a good proportion of the farm buildings will be above the new water level and can also be retained in use. It is likely that some of those which are located below elevation 248 can be moved back to higher ground, and permanently retained.

However, almost without exception, the summer resort properties and residential properties that are almost continuous along certain sections of the highway will be flooded out at the first raising of the water. Seldom will the new shore line present any attractions for summer cottage sites, which would be temporary at best. This, however, is not the case between the east end of Iroquois and Morrisburg, and a new development in this area not dissimilar to that now existing is to be expected. It will, however, be more local in character as the new river road will be a secondary road.

Another high section of the river bank where cottage development can be anticipated is along the high bank west of Moulinette.

Existing Villages

With the sole exception of Morrisburg, all villages, incorporated or not incorporated are wiped out with the raising of the river level. All the unincorporated villages, Mille Roches, Moulinette, Wales, Dickinson Landing, Farrans Point and Aultsville, completely disappear.

There does not seem to be any basis of hope that any one of them could be transferred holus-bolus to a new site.

Aultsville and Farrans Point

Aultsville and Farrans Point, both in the Township of Osnabruck, and but 2-1/2 miles apart, are essentially river towns. They were points of supply to settlers moving west by boat, and later by the River Road; ferrying points for traffic across the river, slowly growing into local supply centres for the surrounding farming population. Focal points on the main highway on which every farm fronted, they became the location of post office, school and church, sufficiently rural yet with sufficient community advantages to attract farmers to build their homes there, when they retired from active farming.

Latterly the development of the motor car and motor transport added its quota of business to the villages on the King's Highway, as did summer visitors and summer residents. Aultsville was a station on the railway; Farrans Point the location of a lock on the canal system.

Farrans Point is drowned out under three feet of water, at the first stage of development; Aultsville under 10 to 13 feet. Extended areas in the vicinity are flooded at the final stage, and will be at best

hayfields during the initial period. The railway and the old canal disappear; the river highway is under water, and the new shore is uninviting for residential use. These villages can never be reconstituted.

Nevertheless, there is bound to be a certain number of residents of these villages tied by sentiment to the vicinity, or with business connections in the adjoining township. There is also need of a local centre in this vicinity. There is little doubt but that the railway will locate a station on its new line immediately east of the Aultsville side road. The Queen Elizabeth Way will probably parallel the railway on the south at this point, but a few hundred feet north of the present concession road.

To the west and east of the Aultsville side road, high grounds extends southerly to the existing railway tracks at the north end of Aultsville. This relatively high ground (260) is the logical site for a new but likely lesser Aultsville. At this point a new road to take the place of No. 2 Highway should enter from the west.

Eight foot navigation will be available up the Aultsville Creek almost to the present railway tracks on the initial stage of the power development. The channel however, is tortuous and the valley evergrown with trees. A good boat channel to provide at least 8 feet of water should be cleared and dredged and a proper dock provided for the new community. This would be the first small boat haven east of Morrisburg. A similar opportunity exists with the Farrans Point Creek, and this Creek also should be improved for small boat navigation and facilities. Eastward, from the Aultsville side road to the Farrans Point side road the concession road parallels the new shore line. A denser development along this road can be expected.

Wales and Dickinson Landing

Two other small communities wiped out are Wales and Dickinson Landing. Wales is the more important. The same story of original growth applies to these villages as applies to Farrans Point and Aultsville, except that Wales is an inland village on the railway, in a rather pretty location on the bank of Hoople Creek. It is completely flooded when the water is raised the first stage.

Three quarters of a mile north of Wales is the Concession Road, and a school and the beginning of a hamlet are at the intersection of this road with the Wales side road. A quarter mile north of this again will be located the new dual highway and the Canadian National Railway new line. A station and sidings are almost certain to be located immediately to the east of the side road. Almost inevitably this crossroads settlement will grow. There is, however, only a small area of high ground (265) at this intersection, which will ultimately be a point of land surrounded on three sides with water.

On the other hand there seems no particular reason why a larger village than the present Wales should develop and there is ample room for such a village at the site mentioned.

Hoople Creek has a deep valley. With the first stage of the power development, 13 feet depth of water will be found where this valley intersects the side road north of Wales. With very minor work, the Hoople Creek channel can be straightened to provide a 160 foot channel with 8 or 10 feet of water. A limited amount of grading will be required to provide a basin, and to fill in what will be the shallow foreshore. This and similar channels will be graded and cleared before the water is raised.

This small boat channel will be crossed by the Long Sault Park Boulevard later referred to. Support is available for this bridge to be built to provide 30 foot clearance above high water level.

A site with some possibilities of development is on the concession road 1-3/4 miles east of Wales on the township line between Osnabruck and Cornwall. Here the ground is higher, and here will be the junction of the Long Sault Boulevard with the Queen Elizabeth Way.

Mille Roches and Moulinette

These two villages are almost contiguous and together extend for two miles along Highway No. 2. There is also considerable development on Sheek Island, which forms part of the same community.

The life of these communities very largely depends upon the Provincial Paper Co. Mill at Mille Roches. There are also some quarries of the Canadian Gypsum and Lime Company, and a certain amount of farm trade, and some summer business. The position of Mille Roches at the Westerly end of the concession road, makes it the focal point of a well populated rural section of Cornwall Township.

Both of these villages and all river front development, including Sheek Island is totally submerged when the water is raised to the initial stage. Only half a dozen houses at Mille Roches remain with their floors above water level, and these disappear when the water is further raised.

Whether the community can be transferred to a new site, or will completely scatter, depends upon the decision reached by the Provincial Paper Company, whether to rebuild its St. Lawrence Paper Mill in this locality, or at some other point in the Province. The operating results of this Mill have admittedly been satisfactory through the years, as has been the Company's relations with its employees. It is reasonable to assume that if a satisfactory site can be provided the Provincial Paper Company in the vicinity, and its plant reconstructed as well as the housing, etc., for its employees, that these joint communities can be re-established.

The townsite proposed for the merged villages is midway between them, lying between the new alignment of the railway, and the new shore line. This is rolling country and represents the height of land between the St. Lawrence and the Reisin Rivers. As the ground and the river are both above the level of the railway, the number of level sites that can be served by railway sidings is limited.

The site suggested for the Provincial Paper Mills is a superlative site on the river front at a point where deep water dockage is readily available. The business and residential areas of new Mille Roches are on higher ground.

Thirty foot navigation is readily obtainable at this townsite. Located on the Lake Ontario level, only six miles from Cornwall, it might well serve as a port for Cornwall until other deep water facilities closer to Cornwall can be provided.

A new road to replace Highway No. 2 is projected parallel to the new railway alignment from the west limit of Cornwall Township, to connect with the main street of Cornwall. The road occupies the summit of the ridge and traverses the centre of new Mille Roches.

The Queen Elizabeth Way in this locality lies north of the new railway alignment. Due to the rolling nature of the terrain, connecting streets between these two highways can be carried over the railway on natural grade.

Given the decision of the Paper Company to continue at Mille Roches, a very active and healthy town should soon establish itself on this strategic site. For two miles west of this townsite, the ground is high, and should be highly desirable for summer or all year residences on suburban or acreage parcels.

SECTION IV
EFFECTS OF RAISING WATER LEVEL
ON INCORPORATED VILLAGES AND TOWNS
NEW SITES SUGGESTED

Such is the general picture of the smaller populated places along the International Rapids Section. The four larger places remain to be discussed.

Iroquois

The village of Iroquois has a population of 1,100 persons and occupies a very level site. With the initial stage of development the entire village to a depth of four to five feet, is flooded. The highest elevation in the main portion of the village is elevation 245, barely a foot and a half above high water. A half a dozen houses at best would be left above water level, and these would not be permanently habitable.

One site that has been suggested for a new Iroquois is about a mile to the north-west on the new railway and highway. This would be an inland site and Iroquois is essentially a river town. The main shipments by rail are cattle, the one industry has no railway siding, so that the railway plays a very small part in the economy of the village.

Another site has been suggested on the river front two miles west of the present village, but this site has no peculiar advantages except that it is on the river and the river road, so that if we could be assured that the existing life of the village could be transferred unchanged to the new site, a very pleasant town could be created.

A third suggested site is on the river front about two miles east of the present village, where the best opportunity for deep water dockage exists. The ground is high, and a considerable farm community is settled along the river road.

The principal attribute in favour of the first of these suggested sites is that the town would be located on the railway and the highway. As mentioned previously, access to the new Queen Elizabeth Highway will be restricted, so that being located alongside the highway offers small advantage. So far as the railway is concerned, it has little effect or influence at the present time on the existing village. The shipments are live stock so that the actual location of the station within a mile or so is of small account. Railway facilities would be desirable if the village became industrialized, but I am unable from present evidences to make this assumption. It is possible that a very small hamlet will establish itself at the railway station, but the presence of the railway station is not in this motor age any assurance that a village will grow around it.

The end of the war will see Canada's industry at peak. There will be many brand new war plants which will be available for peace time uses. Short of a definitely controlled plan to decentralize industry in Canada, there is no reasonable anticipation that Iroquois will suddenly become more industrialized than it was during pre-war years. Two or three small plants employing fifty or so employees each would be desirable, and can be taken care of in any plans suggested herein, but no grandiose ideas of intensive industrial development have been entertained as having no practical certainty and accordingly no place in a program of rehabilitation,

Similarly the possibility of deep navigation does not in itself appear a reason for a townsite. However, given an industry or a group of industries seeking such a site, the conditions are completely altered. In the event that a new industry does appear which sees especial advantages in locating in this particular area, and having need of deep water dockage, then such an industry will more than likely be of such character and type as to desire to create its own townsite. In other words, the location and layout of the village will depend upon the size and character of the industry.

A site on the river either to the east or west of Iroquois is predicated on the assumption that the present town would be reassembled there, and its present life continue. The existing linen mill would be established there, the existing businesses and churches, and the towns would continue its present existence as a commercial, industrial and residential village.

The difficulty in this assumption is that no assurance can be obtained or be expected, that the existing industry will locate on any particular site, or indeed that all the residents of Iroquois will do so. Compulsion as to where one will live, and what property one shall own, is not according to Canadian precedent. It is to be expected that a number of those who presently make Iroquois their home, will, when their properties are expropriated, have good reasons for re-establishing themselves many miles from Iroquois. It is also true that many others may be attracted to the new village, but as to this there is not equal certainty.

Iroquois is essentially a one industry town deriving its main support from the Caldwell Linen Company Plant. Until this concern is able to declare its policy, the size of the new village to be provided is quite uncertain. It is quite possible that this firm may prefer to transfer its operations to some existing town in the vicinity, rather than to be the nucleus of a new town. There are advantages to it in both alternatives.

The site that I favour for a new town is Iroquois Point. This becomes an island of some 160 acres which will be increased to 175 acres by filling in low ground. Part of Iroquois Point is already within the village limits. The balance could be annexed and thus the continuity of the present village corporation be maintained. This area is in part beautifully wooded, and in part planted with apple orchards. The ground rises to forty-five feet above extreme high water level. It has every advantage in amenity as a townsite, except that it will be severed from the mainland, to which it will be joined by a thousand foot earth dyke constructed as part of the main control dam.

The main reason for recommending this location is the certainty of it being the site of at least a small village. On the one side of the island is the 14 foot lock of the Canadian Canal system; on the other is the main control dam crossing the river to the American shore. Some staff will be required for their operation. These will presumably reside in the vicinity. The dam structure will carry a two lane roadway which is almost certain to become a public highway. There is also provision for a construction railway track across the dam. While not at present contemplated, railway operation across the river on the dam is a future possibility, which might eventuate, should the train ferry at Ogdensburg ever be abandoned. A customs and immigration office at the end of the control dam is next to a certainty. It is also highly probable that this island will be the site of a construction camp while the dam is being built, creating a demand for urban facilities - stores, banks, schools, public utilities - which could be carried over into the new community.

If in turn the Caldwell Company decided to remain in Iroquois, a most desirable site could be provided them, to which their operations could be transferred with a minimum of disturbance in their personnel.

This site is indicated on the large scale study plan for this town-site, Plan "C" attached.

The main approach to new Iroquois would be over the 1000 foot dyke extending from the present 14 foot lock to the new shoreline at Brock and Cedar Streets. This dyke would be built wide enough to provide a park approach to the new town. Present Brock Street would become the main approach to both the Queen Elizabeth Way and the railway station.

One arrangement for the new village is indicated on Plan "C" attached hereto. This shows a highway and railway bridge across the fourteen foot present canal. As above stated this railway line across the Control Dam, while a later possibility is not immediately proposed, and this applies as well to the bridge across the Galop Canal.

It is proposed to fill in the narrow strip of flooded land between the south dyke of the present canal, and the higher ground of Iroquois Point, and to lower the grade on the flat on the west side of the point, so that when flooded, there will be a minimum of three feet of water. Iroquois would be a proper site for small boat industries.

A site for wharf with up to 30 feet depth of water, should such ultimately be desired, is indicated south of the entrance to the present 14 foot lock.

Iroquois is largely a town of frame buildings, some of these, though probably not many, would be sufficiently modern and have sufficient value to warrant their removal intact to the new site.

Morrisburg

The village of Morrisburg has a population of 1400. It was founded about 1849 at the time the Morrisburg Canal was being constructed. Its chief trade in the early days was selling supplies to the immigrants moving westward into Western Ontario, while it competed with Ottawa for the business of the back country. Timber was shipped out in great quantity to England, as well as substantial amounts of butter. While reciprocity lasted, much barley was shipped to the States.

There were a number of great trading families in Morrisburg which prospered greatly during the 50's and 60's. Considerable wealth still remains in the town among the descendants of these merchants. The roots of these families are firmly fixed in the village, and will continue there, as long as their homes are left undisturbed.

Morrisburg is also a tourist and summer resort centre. This came about almost naturally, as many of the descendants of the old Morrisburg families returned there for the summer months. Its position on No. 2 Highway at a beautiful spot on the river, added to its popularity. A very substantial impetus came to Morrisburg from its proximity to Williamsburg, the home of famous Dr. Locke.

Morrisburg has three industries - (1) the More Ash foundry - originally manufacturing stoves, now making all manner of castings, largely for electrical fixtures. (2) The Canadian Tack and Nail Company manufacturing nails and tacks. (3) Challies Dental Products, making dentifrices and patent medicines. The total industrial employment is hardly in excess of 60.

The countryside both east and west of Morrisburg is very rich, but substantial areas of this productive land will be flooded. Immediately to the north is a stretch of low swamp land, but beyond this the ground rises and the countryside is very productive. Dairy herds

and cheese are the main products. Morrisburg is the market town of a considerable countryside.

None of the local industries has railway siding accommodation. The important shipment from the station is cattle. The exact position of the railway station or railway tracks is not vital to the business life of the town.

The effect of the St. Lawrence Development on Morrisburg will be devastating. The whole east side of the town including the whole business section is inundated. The high bank overlooking the rapids and canal which gives Morrisburg its special charm as a summer resort, will disappear, even with the first lift of the water to elevation 238. On the west side of the town the shore line, if left unimproved, would be a mud beach immediately south of the main street.

Highway No. 2 to the east and west of Morrisburg will be inundated, so that all through highway traffic, will be lost to the village. The first lift of the water to elevation 238 brings it to the level of the main street in the main business section. Even if the street were raised the minor amount to keep it travelable, all cellars in the main business section would be flooded, and the sanitary system rendered inoperative. The same applies to a number of the residences along the river bank.

The future of Morrisburg is dependent wholly on the intelligence and sympathy that it receives in its rehabilitation. The features that make it attractive as a summer resort will have disappeared - the rapids, the high river bank, the old houses along the river front, its position on No. 2 Highway. Against these losses it will find itself on what is still some of the highest ground along the river front, fronting on a placid lake over a mile wide. It will have deep water at its door, with good industrial possibilities. It should enjoy the benefit of boat-truck transfer to the surrounding country, including Ottawa. Its position as the centre of a rich agricultural country should not be essentially disturbed, as actually only a small percentage of agricultural land in the vicinity is inundated.

Moreover, Morrisburg and vicinity should profit in some measure from those who have found it convenient to live along No. 2 highway and who must seek new homes.

At the same time Morrisburg will profit (and suffer) from an increased standard of rents. Most of the buildings in Morrisburg are fifty to sixty-five years old. No matter how weather proof and sound these buildings are, to spend money to move them to higher ground, or to jack them up where they stand and fill around them is not a proper solution, or in keeping with the great ultra modern engineering work of which their removal is a necessary part. The houses and stores replacing these rendered useless, must be of modern type, and each of equivalent status to that which the building it replaces now holds in the Morrisburg community.

The present business section of Morrisburg is at the south east corner of the town, opposite the lower end of the canal and the ferry wharves. It stretches for about 1000 feet along either side of Main Street which is No. 2 Highway.

With the highway relocated north of the town, and the Morrisburg Canal a thing of the past, the whole outlook of Morrisburg is changed, and any proposal to rebuild the main business centre in the same location will be ill advised. Many of the buildings in this zone are vacant and obsolete and would, without question, be demolished. Any whose physical condition would warrant raising and underpinning would be left, scattered among vacant lots which being filled ground, could not be economically built upon for several years, and in view of the altered business conditions would never be built upon.

The entire town must be replanned to fit the new conditions. Everything that can be retained of the old spirit of the town must be retained, yet the plan should look forward to the development of the town into a major port on the waterway, and an important business and industrial community, midway between Cornwall and Prescott, and the nearest deep water port to Ottawa.

A preliminary plan for Morrisburg is submitted herewith as Plan "D". This is not by any means complete in detail, but is indicative of general proposals.

The proposals first put forward by the Conference of Canadian Engineers in 1929 to dredge out a deep water harbour and fill in the low lying area of the town have been adopted in this study.

All existing development below elevation 252 lying east of the main north and south street in front of the High School (Highway No. 31) is swept away, and this area filled to elevation 252 to 250, and left to settle. This north and south street is widened, and developed as the main business street. All the area between Highway No. 2 and the waterfront is made public park. The shore line is straightened and retained by a low concrete wall. The existing war memorial is raised on its present foundation, and becomes a central feature in the park. East of the new main street, the area lightly filled (less than 6 feet) is reserved for warehouses, storage and repair garages, minor industries, etc., with stores, commercial hotels, etc., fronting the park. East of that again, industrial sites are laid out to the north of a deep water harbour. Railway facilities are provided to the docks and industrial sites by spur track to the C.N.R.

The residential development of the town is directed toward the west end, which is now wholly residential. A new public school is located to the rear of the high school. The present driving park to the north of the High school is shown subdivided for residential use. Four thousand feet of frontage is provided in this area, and say eighty modern houses of reasonable standard should be built in the area, as the first step in the rehabilitation of the village. Similarly the new stores can be built and occupied prior to any general disruption of the present business area.

The general conception of new Morrisburg can be read from the draft plan attached hereto and lettered "d". The Canadian National Railway right of way becomes a new secondary highway. The churches are undisturbed, except for the United Church, which it might be found could be adapted to the new conditions of its existing site. A new Post Office and Dominion Building is suggested at the main intersection, and adjacent to it a civic building incorporating Municipal Offices, library, Market Building, Fire Hall, etc.

Cardinal

The village of Cardinal suffers almost no damage. One or two of the older buildings and wharves of the Canada Starch Company are flooded out, and the water level may rise slightly in the deep cut north of the town. Once the control dam at Iroquois is in operation, this deep cut will never be used, and fixed spans across the channel can be provided.

Cornwall

The Town of Cornwall, with its suburbs, is a city fast approaching 30,000 population. It stands to benefit most materially from the St. Lawrence Development. It is of sufficient size to attract industry, and with large quantities of power available at its door, its industrial expansion is certain. It is the nearest town of size to the main construction works, and should profit thereby while the work is in progress. The permanent staff to operate the powerhouse and switching stations will be additions to Cornwall's population.

Cornwall is left untouched in any physical way by the work except that its water supply may have to be filtered. No provision is made in the St. Lawrence project plans to provide Cornwall with deep water navigation. Very considerable dredging will be required to bring deep water as far as the east limit of the town.

While the growth of Cornwall is assured, and it is badly in need of planning for that future growth, these are matters not directly arising out of the St. Lawrence Development Project. The proposals made herein do not deal with the Town of Cornwall, except to a very minor degree.

SECTION V

HISTORIC, SCENIC AND RECREATIONAL CONSIDERATIONS

It is fitting that in a public work of the character of the St. Lawrence Development, that consideration should be given to the preservation of the historic monuments and the historic associations of the area that will disappear forever. To this section of Ontario are related some of the most historic episodes in the history of Canada - the exploration of the West and the Indian wars of the French Regime, the coming of the United Empire Loyalists, and the war of 1812, later the development of the Canadian Canal system, of which the proposed work is but the final stage. As well the wide St. Lawrence with its mighty rapids and its crystal water is one of the scenic spots of the world, and very accessible.

Long Sault Park

As has been previously referred to, the dominant feature of the river front of Osnabruck Township under the new conditions will be a string of islands, far out in the new lake, which will stretch for six miles from just east of present Farrans Point nearly to Moulinette. These islands will be of various sizes, some almost disappear at extreme high water stage, while some stand ten to thirty feet above high water level. During the first stage (water at elevation 238) most of the islands will be joined together to form two large islands. During this period, or before the water is raised at all, the construction of a causeway and road linking together the ultimate islands is a relatively simple matter.

It is proposed that this chain of islands be set aside as a Dominion or Provincial Park, and that a road be constructed joining them together, and to the mainland at either end. The channels to be bridged would be four to five in number. Some of these islands are partly wooded now. In the course of a very few years they should become very desirable sites for summer cottages. This will be about the only satisfactory site for this class of development between Morrisburg and Moulinette.

The most southerly of these islands is formed from the high ground that overlooks the Long Sault Rapids. To preserve this association, the proposed park and recreation ground is referred to on Plan "B" attached hereto, as Long Sault Park.

U.E. Loyalist Cemetery

Between Morrisburg and Cornwall there are thirteen cemeteries that will be inundated, as well as two west of Morrisburg. It is in these graveyards probably more than in any other spots, that the historic associations of the St. Lawrence country are enshrined. New sites must be found to which the bodies in these cemeteries can be removed. My suggestion is that a single memorial cemetery be established on the most northerly of the Long Sault Islands. This will be the finest island of the group. It consists of the high ground immediately south of the present railway line on the township boundary between Osnabruck and Cornwall Townships. It is the highest ground along the entire front, attaining elevation 290, or about forty-five feet above ultimate high water level. It will be but a quarter of a mile by bridge and causeway from the new mainland shore, and but three quarters of a mile from the new Queen Elizabeth Way. As a site for a memorial cemetery, it would be a beautiful spot, safe from the inroads of commercialism for all time.

Crysler Farm Monument

One other historic spot should be preserved in situ. The battlefield of Chrysler Farm will be covered by five feet of water at the first stage of development, and by about ten feet at ultimate high

water. The existing monument marking the site of this historic event, will then be 1800 feet from the new shore line, and fully a mile from the nearest highway, but only 1200 feet from the centre line of the main navigation channel. Prior to flooding the present stone cairn should be lifted twenty feet on a new footing and an island of at least an acre in extent, built around it. The preservation of the site of this epic incident in Canadian history warrants the expense involved. The new site and setting would be most effective.

Historic Buildings

There are no doubt other historic buildings in the area, the preservation of which by removal to new sites, or by raising their existing sites, must be individually studied. This is a matter which must be given sympathetic and detailed attention by a permanent authority.

SECTION VI

RECOMMENDATION FOR A DOMINION-PROVINCIAL COMMISSION

TO SUPERVISE REHABILITATION

The Needs for, and Limitations on a Rehabilitation Commission

Under the United States-Canadian Agreement, Canada assumes full responsibility for the acquiring of all necessary lands and rights in land; also for the cost of rehabilitation on the Canadian side. It is apparent that the joint commission to be appointed to design the works, allocate and supervise contracts, etc., will have a more limited interest in just how the shore operations are carried on, or in the cost of same, as long as the major construction program is unimpeded. There will be of course a professional responsibility among the engineers of the project as well as among the joint commissions, to see that the estimates developed by the engineers of the Joint Board or its predecessors, are not exceeded without specific approval of the Dominion Government. The government will have to be satisfied that good engineering or humanitarian reasons warrant these estimates being exceeded by any material amounts.

The Ontario Government in turn is obligated to its municipalities to see that they are protected in their proper rights, and obtain a fair chance not only to survive and continue solvent, but to benefit from the changes thrust upon them. That of course is the undoubted desire of the Dominion authority, as the prosperity of these municipalities is part of the general prosperity of Canada. However it is to the Government of Ontario that attaches the power, and with it the responsibility, to enact the legislation, and create the conditions under which these upset municipalities can regain their equilibrium. Undoubtedly the Province has the constitutional powers to reorganize these municipalities. It is at least questionable if the Dominion has the power to do so, unless under special emergency powers.

There is a third party that is interested, and that is the local municipalities themselves. As it happens, all the adverse effects of raising the water level, except to the most negligible extent, occur within the limits of the United Counties of Dundas, Stormont and Glengarry, six of whose municipalities are grievously affected.

By the International Agreement the Great-Lakes St. Lawrence Basin Commission is given jurisdiction "to prepare and to recommend plans and specifications for the construction of works in the International Rapids Section in accordance with and containing the features described in the Annex attached to and made part of this Agreement, with such modifications as may be agreed upon by the Governments," also "to approve all contracts entered into on behalf of either government" and "to supervise the construction of the works."

The works of rehabilitation of Iroquois and Morrisburg are specifically referred to in the Annex. Accordingly there seems little question but that the Great Lakes-St. Lawrence Basin Commission will have jurisdiction over the re-arrangement of these villages, even though very specifically the obligation of financing these particular works lies wholly with the Dominion Government.

Wholly outside the function of the Great Lakes-St. Lawrence Basin Commission is the responsibility of acquiring all lands and interests in lands necessary for the approved works, these being, in effect, those lands requisitioned by the above Commission as necessary. The Dominion specifically agrees to provide all the lands required on the Canadian side.

In the Canada-Ontario Agreement, Canada assumes a responsibility to compensate any municipality which has suffered by the destruction of a substantial proportion of its taxable property. There

is hence assumed by the Dominion, the onus of reconstructing the municipalities to their best economic advantage. This is but stating in words what is obvious in fact, as the lands and persons affected are equally a part of the Dominion as of the Province.

It is impossible to separate the acquirement of lands, buildings and business interests, from projects of rehabilitation, town planning and rebuilding. Those responsible for driving present owners and occupants from the lands liable to flooding, must work in close and sympathetic co-operation with those charged with the re-establishment of specific communities, as well as with the authorities vitally concerned with the re-establishment of the lesser communities.

The town planning problem and its proper solution is quite as important from an economic standpoint as the hydraulic problem and its proper solution, and possibly much more so from the social aspect.

There is most apparent need that the financial powers (and obligations) of the Dominion, the powers of the Province to exercise legislative control over the persons and lands affected, and the interests of the affected municipalities should be brought together in an advisory, if not, an executive committee. Even if it is granted that the Dominion has power to expropriate land for new townsites, its control over the development of same is little greater than that of a private owner. If the St. Lawrence area is to be rehabilitated the complete co-operation of the province is essential.

Rehabilitation Commission Recommended

I recommend that a joint Dominion-Provincial Commission be set up, composed of six members, three appointed by each government. Two of the Dominion members would be Canadian members of the Great Lakes-St. Lawrence Basin Commission, and the third should be the Dominion Officer charged with the acquirement of the lands required for the St. Lawrence project. Of the Ontario members, two would be directly appointed by the Ontario Government, of whom one at least should have an intimate working knowledge of Ontario Municipal and town planning law and practice, and one member would be nominated by the County Council of the United Counties of Dundas, Stormont and Glengarry. All six members would be chosen for their sympathetic understanding of the problems to be solved.

This Commission would be charged with the obligation of preparing a regional plan of the St. Lawrence front from the westerly limit of the Township of Matilda to the line of the New York Central Railway at Cornwall, together with a program of rehabilitation, and to submit same for the approval of the two governments concerned, and of the Great Lakes-St. Lawrence Basin Commission.

Concessions 1 and 2 in the Townships of Matilda, Williamsburg and Osnabruck, those parts of Concessions 1 to 5 inclusive of the Township of Cornwall lying West of the Ottawa and New York Railway with the villages of Iroquois and Morrisburg, should be established as a Special Zone as defined in the Ontario Planning and Development Act and the Commission (or its Ontario members) created the Town Planning authority for that zone.

This same group would be appointed a Board of Supervision of the six municipalities in the United Counties directly affected by the work. The purpose is to make all municipal acts subject to the oversight and direction of the Rehabilitation Commission.

It would be the duty of the two first named Dominion members to act as a liaison with the Great Lakes-St. Lawrence Basin Commission to co-ordinate the work of the two boards, particularly as regards time schedules, and as closely as possible fitting the program of the

Rehabilitation Commission to the St. Lawrence project estimate for the total work involved.

The Rehabilitation Commission would be subject to the Great Lakes-St. Lawrence Basin Commission for the approval of all expenditures.

The Government purchasing agent as a member of the Rehabilitation Commission would be placed in a position whereby he could offer a new building site for one to be taken over, possibly on the basis of removing the existing building to it, or be free to work out an exchange of properties which will retain and re-establish a resident in the area, in conformity with the new plan.

Co-operation with the Great Lakes-St. Lawrence Basin Committee

Unless the duties of the International Commission are modified (for which there is provision made) all plans and contracts for work in connection with rehabilitation must be approved by it, and the physical work supervised by it. As the Dominion Government pays the full cost of this class of work, if the approval of that Government to any plans of rehabilitation is obtained the approval of the Great Lakes-St. Lawrence Basin Commission could hardly be withheld. It would, in my opinion, prove very advantageous to leave the actual carrying out of physical work in the hands of the International Commission who would be specially organized for such work. Certain operations such as grading townsites, installing public utilities, erecting public buildings, improving park areas, etc., would in effect be carried out upon the requisition of the Rehabilitation Commission. This Commission in turn would regulate private building and in it should be vested all public townsite lands, and the remnants of all lands acquired and not subject to flooding. It should be supported by the Ontario Government by adequate town planning legislation, including powers to compel private owners to re-arrange the limits of their lands to conform to any new approved plan, subject to arbitration as to the damages entailed, if any, by so doing.

Organization of the Rehabilitation Commission

It would be a fatal error to assume, or permit either group on the Rehabilitation Commission to assume, that their interests were in any way diversive. The Ontario members should enter on their duties determined to show what considered planning can do towards increasing the amenities of urban and rural life at a lesser cost to the taxpayer. That, in this instance, there will be money available to 'prime and Pump' should add to their responsibility to give the fullest consideration to all proposals. Similarly the Dominion members should accept office on the basis that they are Commissioners of the Crown to see that citizens of Canada driven from their homes by the demands of the national economy, are re-established fairly and honourably, in their new surroundings, and to the best advantage that forethought can devise for the compensation that is justly due them.

While the Commission should be free to choose its own Chairman, I see many advantages in the Chairman being an Ontario member.

The Commission should have its own offices and staff, and should be provided with funds to carry on by the Dominion Treasury. It would be directly responsible to its two principals for town planning the area. The Great Lakes-St. Lawrence Basin Commission would be kept fully informed as to all proposals, to ensure complete co-ordination before the original plans were submitted to Ottawa and Toronto for approval. With such obtained, formal approval of this Commission would be sought, whereafter all construction work would be carried out as provided for under the International Agreement. It might be that the Rehabilitation Commission might itself be authorized to undertake

certain works, but its accounts would be paid through the accounting system of the International Commission. By and large, the Rehabilitation Commission would not be a construction organization. Its chief duties would be planning and administration.

Duties of the Rehabilitation Commission

The relocation and establishment of new schools where they would be required, would be one duty of the Commission. The advantages or disadvantages of consolidated Schools, providing transport to bring the children to the schools, rather than local school sections would be a matter to be worked out by it, with the assistance of the Department of Education.

The relocating of church buildings where congregations have been dispersed, will in most cases require very sympathetic consideration, particularly with regard to independent congregations, whose membership may widely scatter.

The preservation of certain historic sites and buildings if such can reasonably be accomplished, should also be a matter for the decision of this Commission.

Where to transfer the remains and grave stones of those pioneers and others buried in the fourteen or more cemeteries that will be inundated would be another matter to be determined by the Commission, whether in a central spot or in local cemeteries as close as may be to, and as nearly as possible like, the original location.

The choice of lands for public parks, and summer recreation grounds, their development and the means to be taken and the authority under which they should be maintained, would be another matter for their consideration and appropriate action.

In developing a plan for the St. Lawrence region, complete co-ordination as among equals will have to be maintained with the Canadian National Railway, the Ontario Department of Highways and the International Commission with respect to the position of stations, bridges, grade separated crossings, clover leaves, docks, airfields, etc., so that the economics of the local communities will not be lost sight of in deciding matters of relative internal economy to the national transportation systems.

As supervisor of the affected Municipalities, the Commission could, through the Municipalities, pass any necessary by-laws, zoning any area to a particular use, establishing the size of lots that might be sold in any area, provide for the widening of streets by set backs, and impose on the communities themselves the improvement of existing roads, or other betterments which they should reasonably assume. Rehabilitation is not philanthropy. As supervisors, the Commission would determine the annual budget of the municipalities under supervision, check any undue optimism, or prevent the opposite, School Boards would automatically come under their control. Both as Supervisors and as Town Planning Commissioners for the Special Zone, the Commission would be subject to instruction from the Department of Municipal Affairs and could expect the support of same.

The Town Planning Legislation of Ontario is not watertight. It can be sidestepped by the sale of lands by metes and bounds. Legislation is required to close this loophole. One suggestion that has been proposed is that no severance of any parcel less than one acre in extent from any existing ownership be allowed without municipal consent, which, if the municipality is under supervision, is the Supervisory Board. Another desirable addition would provide for the compulsory pooling of land and the compulsory re-arrangement of boundaries. There are many cases in the territory under review where the sidelines of the various holdings are at an acute angle to the main road. Such

properties could be squared up with advantage to themselves and to the planning of the adjacent properties.

It would be the duty of the Rehabilitation Commission to from time to time suggest from their needs and their experience, what added measures of town planning legislation should be added to the Statutes.

SECTION VII

MISCELLANECUS CONSIDERATIONS

Description of Plans Attached

Plans A, B, C, D, attached hereto are preliminary sketches only. Nevertheless the proposals shown on same have been carefully developed on the large scale contour plans (scale 400' - 1" Contour interval 5 feet) provided by the Department of Transport and the Department of Highways. The location of the railway shown is that preferred by the Canadian National Railways; the location of the Queen Elizabeth Way, the most southerly and probable choice of several alternative locations. Except in degree the construction of the Queen Elizabeth Way is not deemed a part of the Rehabilitation Program. The extent to which it is a part of that program is the extent to which its construction will have been expedited by the flooding of Highway No. 2.

So far as the rehabilitation of the road system is concerned, that should include a new local paved highway system to take the place of No. 2 Highway throughout the whole extent of the inundated territory, together with such road connections and minor roads necessary to provide frontage to lands deprived of their present access to the highway system.

Municipal Organization

It is apparent that no worthwhile estimate can be made of what proportion of the population driven from their homes by the raising of the river level, will resettle in the vicinity. That will depend on many factors now indeterminate - the monetary compensations received for their properties, the cost of re-establishing themselves in the area, and whether they will have continued opportunity to earn a livelihood there. The retention within the area of the existing industries, or the establishment there of equivalent industry is a very basic factor.

Nevertheless, except for loss of population and revenue, the municipal organisms would not be jeopardized, in the case of the four townships, if all existing development along the river front disappeared permanently. The townships could still continue to function as townships. Such a circumstance would be fatal to the two incorporated villages, certainly to Iroquois, which would be left as a municipal corporation, with almost no population or assessable property.

This problem of the continuance of the existing municipal corporations has had considerable place in the recommendations made for the re-establishment of Iroquois. The new site suggested is already partly within the village limits. The additional area could readily be annexed, and the corporate machinery continue to function undisturbed. This particular problem does not arise in the case of Morrisburg.

All these municipalities, but particularly the two incorporated villages have corporation assets in the way of water-works, drains, roads and pavements, sidewalks, street lighting, power plants, municipal buildings, schools, etc., constructed and paid for over the years, and which would be reasonably adequate for their needs for many years to come.

It would be neither proper for the municipality to be asked to assume the obligation of re-providing itself with these utilities, nor does it appear altogether proper that a reconstituted village should be provided with up to date modern utilities (the only kind that would ever be installed) wholly without obligation on the part of the inhabitants.

Matters such as this cannot be settled on a dollars and cents basis. The value of a school building built fifty years ago may be comparatively little either on the basis of historic cost or replacement value, with or without allowance for physical depreciation over the years. The building, however, serves its purpose to the satisfaction of its owners.

In short, one of the functions of the Rehabilitation Commission will be to assess on the basis of equity, the proportions of the cost of the new public services to be installed between the Dominion Government on the one hand, and the municipalities on the other hand.

The same would apply with regard to debenture debt. When the assets which such debt represents is destroyed and not replaced, the debt must naturally be assumed as part of the cost of the work in the carrying out of which the former work was destroyed.

The Commission, acting in such matter as an arbitration board, would of course be free to seek such independent advice as it deemed necessary to reach a decision in matters such as the above. While its recommendations would need to carry the approval of the Dominion Government (or International Commission) and that of the Department of Municipal Affairs, if the Commission properly fulfilled its function, these approvals would in most instances be purely formal.

School Sections

The inundation of the river road and the buildings fronting upon it, will wipe out not only all the school houses of the rural sections fronting the river, but totally disperse all the families in these school sections, through the destruction of their homes.

This is true with two exceptions. School Section No. 4 Matilda at the west end of that Township is not affected at all. School Section No. 1 in the east side of Matilda will suffer the loss of its School house (in lot 7) and considerable demoralization to the homes of its inhabitants, but relatively little during the first stage of development.

School Section No. 2 Matilda (with its school house in Lot 18) is badly affected, as is the Village of Iroquois and School Section No. 3 in union with it.

The solution would appear to lie in a union of School Sections 1 and 2, and even more desirably in a Union School for all four School Sections and Iroquois, and the transport of the children to and from school by bus. There should also be considered the desirability of removing from these school sections the rear of the lots contiguous to the second concession road and adding this area to the School sections to the north.

The identical proposals are made with regard to Williamsburg Township. It is recommended that the four Township School Sections fronting the river join with Morrisburg in a union School, possibly divorcing the area adjacent to the second concession road and adding it to the school sections to the north. The number of houses and children in this latter strip is very few, but it would appear a more convenient arrangement for the pupils. The public school buildings in Morrisburg are included among the buildings to be expropriated. A new public school should be erected to the west of the High school on property now owned by the town.

In Osnabruck Township the solution is easy. The four School Sections fronting the river are almost completely inundated. The north limits of Sections 1 and 2 are the present railway tracks. The area to the north of the railway tracks including the village of

Wales has its school house (No. 5) on the concession road in Lot 6. It is this vicinity that the new site for Wales is proposed. It is to be expected that this School Section will have a considerably increased population, and the problem will be the expansion of the present school.

School Sections No. 3 (Farrans Point) and No. 4 (Aultsville) almost completely disappear. The remnants should be merged with the sections to the north. Some additional population is to be expected along the concession road, which may demand an increase of school facilities. The answer again may lie in a Union School for all the front of the Township, or more probably in two union schools, one at new Wales toward the east side of the township, and one at new Aultsville near the west boundary.

In Cornwall Township the Moulinette, Mille Roches and Sheek Island School Sections are affected. The latter completely disappears, as does most of the populated areas of the other two villages. Mille Roches and Moulinette should be merged in one School Section, as it is proposed to merge these communities. In the event of extended growth, a primary school might be found desirable toward the westerly end of the section, but transportation of the more distant pupils would appear to be the more economical until the trend of development becomes clearer.

Compensation should be on the basis of replacement of service utility. Whatever compensation is paid for the school premises wiped out, will be available toward new buildings.

SECTION VIII

THE NEXT STAGE IN PLANNING

The replanning as well as the future development of the St. Lawrence Ontario shore is wholly tied up with the power and navigation project. New village sites, a new railway location, new roads, schools, churches, park lands, are conditioned entirely on changed water levels. Until it is certain that the water levels will be altered, and when, planning the area in extended detail is not practical. While the power and navigation project remains a possibility, and until it becomes a certainty, local development of account is unlikely, local replanning, however desirable in itself, not likely to be considered, and regional planning not possible to carry beyond preliminary proposals.

While the hydraulic and the navigation problems can be solved to the last detail years before actual work commences, dealing as they do with inanimate things, the rehabilitation problem is not wholly in that category. Human beings with free wills and with divergent interests must be dealt with. A final regional plan is an anachronism.

If the St. Lawrence Paper Company decide to relocate in the near vicinity of their present site, an industrial community at Mille Roches is assured. Similarly, if the Caldwell Linen Company relocates near Iroquois, a village there is certain. If either or both companies leave the area, the conditions of rehabilitation are essentially altered.

It cannot be expected that any decision can be made by these companies until the basis of compensation to be paid them has been decided upon. This in turn will not be settled until the St. Lawrence project has been authorized and the work about to proceed.

Nor, for example, will the Canadian National Railway be prepared definitely to state its intentions, until it has negotiated a settlement with the Great Lakes St. Lawrence Basin Committee.

No final answer to any of these questions can be reached until the International Agreement is ratified and the Great Lakes St. Lawrence Basin Commission set up.

In my judgment no regional plan can be prepared of greater scope than a preliminary study, until the fundamental conditions to be planned for are more definitely known.

At least three years will elapse between the date the agreement is ratified and the date the land can be inundated. Final details of regional planning can only be accomplished during that period, in conjunction with the acquirement of the lands subject to damage, and the settlement of compensation.

The immediate need and the next step in planning is to urge the two interested governments to reach an understanding relative to the way co-operation in the field of planning and rehabilitation can best be accomplished. I have recommended a joint Rehabilitation Commission organized as I believe would best accomplish that purpose. One possible alternative is for the Ontario Government to, as soon as may be, establish a Special Zone under the Planning and Development Act, set up a Town Planning Commission over this zone, and appoint them a Board of Supervisors for the affected municipalities. This would ensure that this Board would be organized and ready to co-operate with the Great Lakes-Basin Commission when the latter were appointed. However, pending ratification of the International Agreement, There would be relatively little for this Board to do, which would react against its efficiency and prestige. As well there is the question of how to finance it. It would seem more desirable

to have the Great Lakes St. Lawrence Basin and the Rehabilitation Commission start to function at the same time. The first duty of the Rehabilitation Commission would be the preparation of a regional plan in the light of the circumstances then and thereafter existing. The basic concept of this plan could be settled within three or four months.

On the basis outlined above (and more fully in Section VI) the cost of planning studies will be wholly and properly absorbed into the cost of rehabilitation. I visualize the budget for the Rehabilitation Commission, covering planning and administration at approximately \$75,000 per year, or totalling in four years operations about 1% of the expenditures on rehabilitation. At most a minor fraction of this amount would represent additional overhead to the Great Lakes St. Lawrence Basin Commission., That such minor additional expenditure on planning the area and controlling its redevelopment would result in actual savings in rehabilitation expenditure, in annual economies for the municipalities and in greatly increased satisfaction of life for all those living in or passing through the communities, need hardly be stressed.

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